APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/996,320	11/21/2001	Saad A. Sirohey	GEMS:0166/YOD(31-IS-6171)	3586

	7590	03/14/2005		EXAMINER

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	EXAMINER
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ART UNIT	PAPER NUMBER
2624	

DATE MAILED: 03/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/996,320	SIROHEY ET AL.
	Examiner	**Art Unit**	
	Wenpeng Chen	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-85* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-85* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>21 November 2001</u> is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/11/03*.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

Priority

1.   The present application is a CIP of application 09/716,603, filed on 11/20/2000,

which is CIP of application 9/448,950, filed on 11/24/1999. The Examiner compared the present

application with applications 09/716,603 and 9/448,950 and found that (1) application 9/448,950

disclosed only materials related to Figs. 1-13 of the present application and (2) application

09/716,603 disclosed only materials related to Figs. 1-20 of the present application. Figs. 14-20

of the present application and related portions of specification disclose wavelet decomposition

the first time on 11/20/2000. Figs. 21-26 for selectively transferring data appear the first time on

11/21/2001.

        Therefore, the Examiner concluded that the disclosure date for wavelet decomposition is

11/20/2000 and disclosure date for selectively transferring data is 11/21/2001. This conclusion

will be applied for determining prior art.

2.   The benefit of CIP status of the present application is not claimed in "Transmittal

of New Application" nor "Oath or Declaration" filed on 11/21/2001.

Drawings

3.   The drawings are objected to because of the following informalities.

-- In Fig. 17, "overflow condition" is checked at step 366. When there is no overflow,

step 368 still performs "generate sub-bands overflow." Is it correct?

Correction is required.

Specification

4.   The disclosure is objected to because of the following informalities.

-- In page 16, the numbers after the term "the Figs" in line 18 shall be provided.

Appropriate correction is required.

5.   The abstract should be in narrative form and generally limited to a single

paragraph within the range of 50 to 150 words. The abstract has more than 150 words.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7.   Claims 1-5, 7-63, and 73-85 are rejected under 35 U.S.C. 102(e) as being

anticipated by Dekel et al. (US patent 6,314,452.)

a.   For Claims 1-5 and 7-28, Dekel teaches a method for selectively transferring

image data, the method comprising:

-- selecting an image resolution suitable for display in a desired viewport, wherein the

image resolution corresponds to one set of a plurality of data sets decomposed from an image by

lossless wavelet decomposition; (column 5, line 60 to column 6, line 61; column 15, line 39 to

column 16, line 9; column 16, lines 37-57; column 22, lines 38-48; column 24, lines 17-21 and

58-65; Scale which is associated with view resolution for display is selected by the client.

Reversible wavelet transforms produce lossless wavelet decomposition.)

-- selectively retrieving a portion of the plurality of data sets for recomposition of the

image at the image resolution; (column 5, lines 24-47; column 16, lines 38-57; column 19, line

18 to column 22, line 38; column 22, line 38 to column 23, line 6; Data based on the client's

request list are retrieved from the server to client for rendering to the specified resolution.)

-- wherein the lossless wavelet decomposition comprises lossless integer wavelet

decomposition; (column 24, lines 59-64; column 28, lines 10-60)

-- wherein each of the plurality of data sets is compressed by lossless compression;

(column 24, lines 17-21; column 28, line 62 to column 29, line 53; Lossless transmission

requires every step to lossless, including all compression.)

-- wherein the acts of selecting the image resolution and selectively retrieving the portion

are executed automatically; (column 15, lines 17-37; The client's action of zoom-in on a GUI

makes the client's imaging module to generate automatically the selection of resolution and the

retrieval of the selected portions of data.)

-- wherein each of the data sets comprises a hierarchical set of sub-bands, one set

comprising a low frequency component at a lowest resolution level and each remaining set

comprising high frequency components at successively higher resolution levels; (column 5, line 48 to column 6, line 19; column 8, line 57 to column 9, line 33; Data of a coding block is a data set that comprises a hierarchical set of sub-bands.)

-- wherein selecting the image resolution comprises selecting the image resolution from a plurality of progressively higher resolution levels, each corresponding to one of the plurality of data sets; (column 6, lines 7-19; column 15, lines 45-60; column 19, lines 18-52; Data of selected t_resolution are selected and retrieved. The data with t_resolution larger than 1 are data of a plurality of progressively higher resolution levels.)

-- wherein selecting the image resolution comprises identifying a lowest suitable one of the plurality of progressively higher resolution levels that does not require upward scaling beyond a desired scaling threshold for display in the desired viewport; (column 20, lines 6-17; The required resolution is just above the resolution of ROI. There is no need of upward scaling.)

-- wherein identifying the lowest suitable one comprises evaluating a highest local resolution level of the plurality of progressively higher resolution levels; (column 5, lines 24-47; column 15, lines 17-37; section 5.1; column 19, lines 64-66; Data blocks stored in the client cache are evaluated and a highest local resolution level stored at the client is determined for deciding the request list.)

-- wherein selectively retrieving the portion comprises recalling the highest local resolution level, which is the lowest suitable one; (column 5, lines 1-47; column 15, lines 17-28; section 5.1; column 23, lines 11-28; column 23, lines 32-43; When a client views a low resolution ROI first, the client selects and stores data blocks up to the highest local resolution level for the low resolution, which is the lowest suitable one for rendering the low resolution ROI.. When the client decides to zoom into a high resolution, the data blocks up to the highest local resolution level already stored in the client cache are recalled.)

-- wherein selectively retrieving the portion comprises remotely retrieving the lowest

suitable one, and any resolution levels between the highest local resolution level and the lowest

suitable one, from remote storage; (column 5, lines 1-47; column 15, lines 17-28; section 5.1;

column 23, lines 11-28; column 23, lines 32-43; When a client zooms to view a high resolution

ROI, the lowest suitable one is associated with rendering the high resolution ROI in this case.

Because data blocks are stored and available at the client up to the highest local resolution level

for rendering the corresponding low resolution version, any resolution levels between the highest

local resolution level stored in the client cache and the lowest suitable one for rendering the high

resolution version are retrieved from remote storage in the server.)

-- wherein selecting the image resolution comprises zooming the desired viewport toward

a desired viewport resolution, wherein zooming the desired viewport comprises zooming the

desired viewport inwardly toward a spatial region of interest; (column 15, lines 17-28; column

15, line 60 to column 16, line 9; column 27, lines 37-43; New ROI view parameters are called

during a zoom-in process for a desired viewport resolution.)

-- wherein selectively retrieving the portion comprises: identifying a highest local

resolution level corresponding to a highest locally stored set of the plurality of data sets; and

locating the image resolution selected; (column 5, lines 1-47; column 15, lines 17-28; section

5.1; column 23, lines 11-28; column 23, lines 32-43; When a client views a low resolution ROI

first, the client selects and stores data blocks up to the highest local resolution level, which is the

for rendering the low resolution ROI.. When the client decides to zoom into a high resolution,

the image resolution is selected and located from a server.)

-- wherein locating comprises: identifying a remote storage location if the image

resolution exceeds the highest local resolution level; and retrieving from the remote storage

location a group of the plurality of data sets comprising the one set and any sets of the plurality

of data sets corresponding to resolution levels between the highest local resolution level and the

image resolution selected; (column 5, lines 1-47; column 15, lines 17-28; section 5.1; column 23, lines 11-28; column 23, lines 32-43; Because data blocks are stored and available at the client up to the highest local resolution level for rendering the low resolution version, any resolution levels between the highest local resolution level stored in the client cache and the image resolution selected are retrieved from remote storage in the server.)

-- identifying a local storage location if the highest local resolution level exceeds the image resolution selected; and recalling the portion from the local storage location; (column 15, lines 17-28; When data blocks of the highest local resolution level stored in the client cache have resolution exceeding the image resolution selected, data are recalled from the client cache. No request of data from the server is needed.)

-- wherein zooming the desired viewport comprises zooming the desired viewport outwardly for viewing a relatively broader region of interest; (column 15, lines 15-67; The client can select any ROI. When parameter wordPolygon is changed from a small area to an expanded area, it is an outward zooming.)

-- wherein selectively retrieving the portion comprises using a highest local resolution level corresponding to a locally stored group of the plurality of data sets for zooming the desired viewport outwardly; (column 15, lines 17-28; For an outward zooming, the viewport resolution is reduced. In this case, data blocks of the highest local resolution level stored in the client cache have resolution exceeding the new resolution, data associated with the old viewing condition are recalled from the client cache. No request from the server is needed for that portion of data.)

-- scaling the image resolution to fit the desired viewport; (column 15, lines 60-67; column 20, lines 13-26; column 22, lines 23-35; column 23, lines 12-28)

-- wherein selectively retrieving the portion comprises requesting a data stream comprising the portion of the plurality of data sets arranged sequentially in a desired order based on the lossless wavelet decomposition and wherein the desired order comprises an order of

increasing resolution; (column 5, lines 24-33; column 15, lines 39-60; column 16, lines 16-29; Progress By Resolution mode)

-- wherein requesting the data stream comprises obtaining image characteristics disposed in a header of the data stream; (column 24, lines 11-16; column 10, lines 17-22)

-- wherein the image characteristics comprise a quantity of the plurality of data sets, a resolution of each data set, and a compressed size of each data set; (column 23, line 43 to column 25, line 62; column 10, lines 17-22; Parameter losslessMode indicates a quantity. Parameter numberOfResolution is related to a resolution. A compressed size of each data set is shown in column 31, lines 7-13.)

-- reading the image characteristics disposed in the header during retrieval of the data stream for selectively retrieving the portion; (column 19, lines 20-51; The header information (t_x, t_y, t_resolution) is read for each data block.)

-- breaking transmission of the data stream upon complete retrieval of the portion; (column 20, lines 28-46)

-- storing the portion in local storage; (column 5, lines 23-59; column 15, lines 15-37)

-- recomposing the image at the image resolution by combining the portion retrieved from remote storage with a local portion of the plurality of data sets stored in local storage; (column 5, lines 23-59; column 15, lines 15-37)

-- wherein the recomposing the image at the image resolution comprises executing reverse wavelet decomposition on a group of the data sets ranging from a lowest resolution level to the image resolution, wherein the group comprises the portion and the local portion. (column 5, lines 23-59; column 15, lines 15-37; column 21, line 57 to column 22, line 3)

b.   For Claims 29-49, Dekel further teaches:

-- determining a viewport resolution of a client viewport; (column 15, lines 60-67; column 23, lines 11-28)

-- (a) identifying a highest local resolution level corresponding to one local set of a plurality of decomposed image sets generated from an image by lossless wavelet decomposition, (b) selecting an acceptable image resolution for display in the client viewport by comparing the viewport resolution against progressively higher resolution levels corresponding to the plurality of decomposed image sets, and (c) remotely retrieving desired sets of the plurality of decomposed image sets for recomposing the image at the acceptable image resolution; (column 5, lines 1-47; column 15, lines 17-28; section 5.1; column 23, lines 11-28; column 23, lines 32-43; Because data blocks are stored and available at the client up to the highest local resolution level for rendering the low resolution version, any resolution levels between the highest local resolution level stored in the client cache and the image resolution selected are retrieved from remote storage in the server.)

-- wherein remotely retrieving desired sets comprises requesting the desired sets from a remote server via a network. (Fig. 1)

With the above-cited teaching and comparing Claims 29-49 with Claims 1-7 and 8-28, one can conclude that Dekel also teaches the method recited in Claim 29-49 as evident with the cited Dekel's passages in supporting rejections of Claims 1-7 and 8-28.

c.   For Claims 50-63, Dekel further teaches a system including client workstations to carries out the methods recited for Claims 1-6 and 7-49.

With the above-cited teaching and comparing Claims 1-7 and 8-49 with Claims 50-63, one can conclude that Dekel also teaches the system recited in Claim 50-63 as evident with the cited Dekel's passages in supporting rejections of Claims 1-7 and 8-28.

d.   For Claims 73-85, Dekel further teaches a computer program stored in a machine readable medium to carry out the method recited in Claims 1-7 and 8-49. (column 4, lines 17-30; Claims 41-42)

With the above-cited teaching and comparing Claims 1-7 and 8-49 with Claims 73-85,

one can conclude that Dekel also teaches the system recited in Claim 73-85 as evident with the

cited Dekel's passages in supporting rejections of Claims 1-7 and 8-28.

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that
the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary
skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the
invention was made.

9.   Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dekel et al.

(US patent 6,314,452) as applied to Claim 5, and further in view of Sodagar et al. (US patent

6,157,746.)

Dekel teaches the parent Claim 5.

However, Dekel does not teach the feature related different coding for low-frequency and

high-frequency components.

Sodagar teaches a wavelet compression system and method, comprising:

-- compressing the high-frequency components using actual values, and compressing the

low frequency component at the lowest resolution level using prediction errors. (column 18, lines

3-24)

It is desirable to improve coding efficiency. It would have been obvious to one of

ordinary skill in the art, at the time of the invention, to apply Sodagar's teaching of coding

Dekel's LL band with predicting error in Dekel's compression system and method because the combination improves coding efficiency of LL band and thus the whole image.

10.   Claims 64-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dekel et al. (US patent 6,314,452) as applied to Claim 50, and further in view of Cooke, Jr. et al. (US patent 6,574,629.)

Dekel teaches the parent Claim 50. Dekel also teaches the limitation recited in Claim 72 as discussed above.

However, Dekel does not teach a picture archiving and communication system (PACS) or imaging systems recited in the above-listed claims.

. Cooke teaches PACS system, comprising:

-- a PACS system; (column 33, lines 28-40)

-- an MRI system, a computed tomography system, a positron emission tomography system, a radio fluoroscopy system, a computed radiography system, and an ultrasound system; (Fig. 1; column 9, line 66 to column 10, line 51; column 34, lines 1-20)

-- compression image data for storage, transmission, and retrieval. (column 9, line 66 to column 10, line 51; column 13, line 61 to column 14, line 5)

It is desirable to decode a localized portion of a medical image efficiently for viewing and analysis. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to apply Dekel's compression system and method to compress various images used in Cooke's PACS system because the combination facilitates retrieval interested regions in medical images for medical analysis.

Conclusion

11.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wenpeng Chen whose telephone number is 703 306-2796. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K Moore can be reached on 703 308-7452. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9306 for After Final communications. TC 2600's customer service number is 703-306-0377.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305-4700.

Wenpeng Chen
Primary Examiner
Art Unit 2624

March 2, 2005